

WHAT IS CLAIMED IS:

1. A dielectric ceramic comprising
 $(\text{Ba}_{1-x}\text{Ca}_x\text{O})_m\text{TiO}_2 + \alpha\text{Re}_2\text{O}_3 + \beta\text{MgO} + \gamma\text{MnO}$

in which Re is at least one member selected from the
group consisting of Y, Gd, Tb, Dy, Ho, Er and Yb; α , β , γ ,
5 m and x are molar ratios; $0.001 \leq \alpha \leq 0.10$; $0.001 \leq \beta \leq$
 0.12 ; $0.001 < \gamma \leq 0.12$; $1.000 < m \leq 1.035$; and $0.005 < x$
 ≤ 0.22 , and

about 0.2 to 5.0 parts by weight of either
a first sub-component or a second sub-component or a
10 third sub-component relative to 100 parts by weight of
 $(\text{Ba}_{1-x}\text{Ca}_x\text{O})_m\text{TiO}_2$, wherein

the $(\text{Ba}_{1-x}\text{Ca}_x\text{O})_m\text{TiO}_2$ contains about 0.02% by
weight or less of alkali metal oxides,

the first sub-component is a $\text{Li}_2\text{O}-(\text{Si},\text{Ti})\text{O}_2-\text{MO}$
15 oxide in which M is at least one of Al and Zr,

the second sub-component is a $\text{SiO}_2-\text{TiO}_2-\text{XO}$ oxide
in which X is at least one selected from the group
consisting of Ba, Ca, Sr, Mg, Zn and Mn, and

the third sub-component is SiO_2 .

2. A dielectric ceramic according to Claim 1,
wherein the $(\text{Ba}_{1-x}\text{Ca}_x\text{O})_m\text{TiO}_2$ has a mean particle size of
about 0.1 to 0.7 μm .

3. A dielectric ceramic according to Claim 1,
wherein the first sub-component is present and comprises
 $x\text{LiO}_2-y(\text{Si}_w\text{Ti}_{1-w})\text{O}_2-z\text{MO}$, x, y and z are molar percentages
and $30 \leq w \leq 1.0$, and is within the area surrounded by
5 ~~the~~ straight lines connecting between ~~the~~ succeeding two
points represented by A ($x = 20$, $y = 80$, $z = 0$), B ($x =$

10 10, $y = 80$, $z = 10$), C ($x = 10$, $y = 70$, $z = 20$), D ($x = 35$, $y = 45$, $z = 20$), E ($x = 45$, $y = 45$, $z = 10$) and F ($x = 45$, $y = 55$, $z = 0$) or on said lines in a ternary composition diagram having apexes represented by the components LiO_2 , $(\text{Si}_w\text{Ti}_{1-w})\text{O}_2$ and MO , provided that when the ^{first sub-} component is on the line A-F, $0.3 \leq w < 1.0$.

5 4. A dielectric ceramic according to Claim 3, wherein comprising at least one of Al_2O_3 and ZrO_2 in a combined amount of about 20 parts by weight or less and in which the ZrO_2 is 10 parts by weight or less relative to 100 parts by weight of the $\text{Li}_2\text{O}-(\text{Si},\text{Ti})\text{O}_2$ -MO oxide.

5 5. A dielectric ceramic according to Claim 3, wherein said points are A ($x = 0$, $y = 20$, $z = 80$), B ($x = 19$, $y = 1$, $z = 80$), C ($x = 49$, $y = 1$, $z = 50$), D ($x = 45$, $y = 50$, $z = 5$), E ($x = 20$, $y = 75$, $z = 5$) and F ($x = 0$, $y = 80$, $z = 20$) and wherein the $(\text{Ba}_{1-x}\text{Ca}_x\text{O})_m\text{TiO}_2$ has a mean particle size of about 0.1 to 0.7 μm .

5 6. A dielectric ceramic according to Claim 1, wherein the second sub-component is present and comprises $x\text{SiO}_2$ - $y\text{TiO}_2$ - $z\text{XO}$, x , y and z are molar percentages, and is within the area surrounded by ~~the~~ straight lines connecting between ~~the~~ succeeding two points represented by A ($x = 85$, $y = 1$, $z = 14$), B ($x = 35$, $y = 51$, $z = 14$), C ($x = 30$, $y = 20$, $z = 50$) and D ($x = 39$, $y = 1$, $z = 60$) or on said lines in a ternary composition diagram having apexes represented by the components SiO_2 , TiO_2 and XO .

7. A dielectric ceramic according to Claim 6, comprising at least one of Al_2O_3 and ZrO_2 in a combined

amount of about 15 parts by weight or less and the ZrO_2 is 5 parts by weight or less relative to 100 parts by weight of the SiO_2 - TiO_2 -XO oxide.

8. A dielectric ceramic according to Claim 6, wherein said points are A ($x = 1$, $y = 14$, $z = 85$), B ($x = 20$, $y = 10$, $z = 70$), C ($x = 30$, $y = 20$, $z = 50$), D ($x = 40$, $y = 50$, $z = 10$), E ($x = 20$, $y = 70$, $z = 10$) and F ($x = 1$, $y = 39$, $z = 60$) and wherein the $(\text{Ba}_{1-x}\text{Ca}_x\text{O})_m\text{TiO}_2$ has a mean particle size of about 0.1 to 0.7 μm .

9. A dielectric ceramic according to Claim 1 in which the third sub-component is present.

10. A dielectric ceramic according to Claim 2, wherein the molar ratio of $(\text{Ba} + \text{Ca})/\text{Ti}$ is about 0.99 to 1.035.

11. A laminated ceramic capacitor having:
a plurality of dielectric layers containing the dielectric ceramic according to Claim 1;

a plurality of inner dielectric layers comprising Ni or a Ni alloy and existing among a plurality of said dielectric layers; and

external electrodes in electrical continuity to a plurality of said inner dielectric layers and being on the surface of said ceramic capacitor.

12. A laminated ceramic capacitor according to Claim 11, wherein said external electrodes comprise a sintered layer of conductive metal powder or conductive metal powder and glass frit.

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13. A laminated ceramic capacitor having:
a plurality of dielectric layers containing the
dielectric ceramic according to Claim 2;

5 a plurality of inner dielectric layers
comprising Ni or a Ni alloy and existing among a
plurality of said dielectric layers; and
external electrodes in electrical
continuity to a plurality of said inner dielectric layers
and being on the surface of said ceramic capacitor.

14. A laminated ceramic capacitor according to
Claim 13, wherein said external electrodes comprise a
sintered layer of conductive metal powder or conductive
metal powder and glass frit.

15. A laminated ceramic capacitor having:
a plurality of dielectric layers containing the
dielectric ceramic according to Claim 3;

5 a plurality of inner dielectric layers
comprising Ni or a Ni alloy and existing among a
plurality of said dielectric layers; and
external electrodes in electrical
continuity to a plurality of said inner dielectric layers
and being on the surface of said ceramic capacitor.

16. A laminated ceramic capacitor according to
Claim 15, wherein said external electrodes comprise a
sintered layer of conductive metal powder or conductive
metal powder and glass frit.

17. A laminated ceramic capacitor having:
a plurality of dielectric layers
containing the dielectric ceramic according to Claim 6;

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5 a plurality of inner dielectric layers
comprising Ni or a Ni alloy and existing among a
plurality of said dielectric layers; and
external electrodes in electrical
continuity to a plurality of said inner dielectric layers
and being on the surface of said ceramic capacitor.

18. A laminated ceramic capacitor according to
Claim 17, wherein said external electrodes comprise a
sintered layer of conductive metal powder or conductive
metal powder and glass frit.

5 19. A laminated ceramic capacitor having:
a plurality of dielectric layers
containing the dielectric ceramic according to Claim 9;
a plurality of inner dielectric layers
comprising Ni or a Ni alloy and existing among a
plurality of said dielectric layers; and
external electrodes in electrical
continuity to a plurality of said inner dielectric layers
and being on the surface of said ceramic capacitor.

20. A laminated ceramic capacitor according to
Claim 19, wherein said external electrodes comprise a
sintered layer of conductive metal powder or conductive
metal powder and glass frit.